

Remarks/Arguments

The Office Action of November 15, 2005 and the references cited therein have been carefully studied and reviewed, and in view of the foregoing Amendment and following representations, reconsideration is respectfully requested.

Claims 1 and 3 – 7 have been canceled. Claim 2 has been amended solely to incorporate therein the canceled subject matter of claim 3. Thus, it is respectfully requested that the Amendment be entered as not raising any new issues requiring further search and/or consideration.

One aspect of the present invention is the provision of the protrusion 26 as a means to concentrate heat at the flute 22 in the end point detection window and thereby inhibit polymer from adhering to the window within the flute 22 (pars. [0105] and [0110] of Applicant's original specification).

To this end, the protrusion 26 as recited in amended claim 2 has the following features. First, the protrusion 26 is constituted by a solid portion of the window itself. Secondly, the protrusion 26 extends outwardly from a central portion of an outer surface of the window that is substantially parallel to the inner surface of the window. Thirdly, the flute 22 is located no deeper in the window than the inner end of the protrusion 26. Fourthly, the protrusion 26 and the flute 22 are aligned in the direction in which the protrusion 26 extends.

Claim 2 differentiates the protrusion 26 of the present invention, whose function is to direct heat towards the flute 22 and yet allow process monitoring, from the end point detection windows of the prior art even as viewed in combination.

Suk et al. (USP 5,748,297) disclose an end point detection window having a hollow protrusion 22 whose function is to form the recess that reduces clouding along the axis of the detector. Thus, the protrusion 22 is not solid nor is the recess a flute that is located no deeper in the window than the inner end of the protrusion 22. Therefore, even assuming, *arguendo*, that one of ordinary skill in the art were motivated to replace the window 14 of the APA of FIG. 2 with a window of the type taught by Suk et al., the result would still lack a detection window having a protrusion whose form and function correspond to those of claim 2.

Kim et al. (KR 2002009190A) teach a detector having a window of the same type disclosed by Suk et al., namely a window 12 having a hollow outwardly extending protrusion. Moreover, Kim et al. additionally teach a heater 30 “used for compensating a temperature in an etch process of a reaction chamber”. That is, the hollow protrusion of the window in Kim et al. is configured to provide the recess itself and is not provided for the purpose of concentrating heat at such a recess. In any case, even assuming, *arguendo*, that one of ordinary skill in the art were motivated to employ a heater 25 as taught by Kim et al. in the APA/Suk et al. modification, the resulting combination would still have a hollow protrusion different from the protrusion and flute recited in Applicant’s claim 2.

Finally, the Examiner refers to the embodiment of FIG. 2A of Grimbergen et al. (USP 6,835,75) as teaching “a window 130 ... that has a plug (protrusion) 136 that is like a solid portion”. In the embodiment of FIG. 2A of Grimbergen et al., the window itself is a plug 132 that sits on a ledge 138 in the ceiling of the process chamber (col. 2, lines 30 – 46). Thus, in direct contrast to Applicant’s claimed invention, the **protrusion 136 of the plug extends inwardly** from disc 133, i.e., down from the ceiling, **towards the interior of the chamber**. Furthermore, the protrusion 136 extends inwardly so as to define a recess 134 with the ceiling wall that acts to limit access by the active species of the process which takes place in the process chamber.

With the above is mind, Applicant first asserts that there is no suggestion whatsoever that would have motivated on of ordinary skill in the art to have modified the proposed APA/Suk et al./Kim et al. combination in further view of the teachings associated with the plug shape of the ceiling window taught by Grimbergen et al. The APA/Suk et al./Kim et al. combination already has a recess (in the hollow protrusion) corresponding to recess 134 of Grimbergen et al. That is, the configuration of the window 130 of the embodiment of FIG. 2A of Grimbergen et al. would be viewed by those of ordinary skill in the art as an alternative to the type of windows taught by Suk et al. or Kim et al. having a hollow protrusion that defines a recess.

Secondly, even assuming, *arguendo*, that one of ordinary skill in the art were somehow motivated to configure the APA/Suk et al./Kim et al. combination so as to have the form of a plug that can be mounted to a ceiling of a process chamber, the

resulting combination would still not meet claim 2. Again, the protrusion 136 of the window taught by Grimbergen et al. **extends inwardly** and thus, the prior art as a whole fails to suggest a window having a solid outwardly extending protrusion used to concentrate heat at a flute in the window.

For these reasons, namely because of the differences between Applicant's claimed invention and the references, including the lack of suggestion in the references of a system for detecting change in a process occurring in a processing chamber comprising a window that has an outwardly extending solid protrusion in combination with a heater to concentrate heat at a flute in the window, it is seen that the references do not render the subject matter of Applicant's claims obvious under 35 USC 103 when such subject matter is considered as a whole . Accordingly, early reconsideration and allowance of the claims are respectfully requested.

Respectfully submitted,

VOLENTINE FRANCO & WHITT, PLLC

By:

 Reg No 33289

Michael Stone

for: Reg. No. 32,442

One Freedom Square
Suite 1260
11951 Freedom Drive
Reston, VA 20190
Tel. (571) 283-0720